Project Introduction: Co-Working Space Management System

This project presents an all-in-one, locally hosted web application tailored specifically for co-working spaces, designed to optimize both user experience and administrative efficiency. Deployed on a compact and reliable local server - commonly a Raspberry Pi - the system ensures secure, low-latency operation, ideal for the dynamic needs of co-working environments.

From the user perspective, a sleek tablet interface warmly welcomes clients with detailed space information and pricing. Users can effortlessly sign up or sign in, explore a full interactive map of available seats, and reserve their preferred workspace. Upon initial check-in, the system automatically generates two unlimited internet access coupons via seamless integration with the IPFire firewall, granting users secure and controlled Wi-Fi connectivity. Furthermore, each user can access a personal client portal to review session histories and submit service requests directly.

Administrators are equipped with a powerful dashboard offering comprehensive control and insight. Features include user management, seat availability updates, real-time and historical session tracking with detailed data - such as user identities, seat assignments, session durations, internet coupons and linked MAC addresses, subscription details, and services rendered. The platform also facilitates subscriber progress monitoring, targeted messaging to tablets for timely announcements, and dynamic management of services including stock tracking and request approvals. Internet coupon distribution and MAC address association are fully automated through specialized Python scripts interfacing with the IPFire firewall, ensuring streamlined operations.

Supporting this ecosystem are three dedicated Python scripts: one to generate and record internet access coupons in the database; a second to capture MAC addresses of connected devices linked to coupons for accurate user identification; and a third to automate email notifications, alerting users

when their subscriptions or sessions begin.

This turnkey solution can be deployed as a pre-configured hardware package - including Raspberry Pi and tablet - or installed on existing local servers, providing flexibility to match client infrastructure. Subscription-based licensing coupled with maintenance ensures continued support and system enhancements, making this solution a reliable backbone for modern co-working space management.